WHAT IS CLAIMED IS:

1. A chemical reaction monitoring system for parallel monitoring of a plurality of chemical reactions, each chemical reaction occurring within a respective one of a plurality of wells, said system comprising:

a lighting device for illuminating the plurality of wells;

a camera device configured to obtain a fresh image of the plurality of wells and saving said fresh image to an image storage location;

a graphical user interface program for viewing said saved fresh image; and

an analyzer program for accessing said saved fresh image, geometrically registering said saved fresh image in order to determine a specific value corresponding to each one of the chemical reactions within each well at the time the image was obtained, and saving said specific values to an analysis results storage location.

2. The chemical reaction monitoring system of claim 1, wherein the chemical reaction is oligonucleotide synthesis.

3. The chemical reaction monitoring system of claim 1, wherein said plurality of wells comprises a multi-well plate.

4. The chemical reaction monitoring system of claim 1, wherein said lighting device comprises a light emitting diode (LED) array.

5. The chemical reaction monitoring system of claim 4, wherein said LED array includes a first array and a second array positioned on either side of a multi-well plate-viewing window.

6. The chemical reaction monitoring system of claim 4, wherein said LED array includes a single array positioned pivotally mounted on one side of a multi-well plate-viewing window.

7. The chemical reaction monitoring system of claim 1, wherein said camera device comprises a charge couple device (CCD) capable of imaging the plurality of wells simultaneóusly.

8. The chemical reaction monitoring system of claim 1, wherein said analyzer program processes said fresh image and said specific values comprise a processed image.

9. A chemical synthesis system comprising:

(a) a sample holder placed to support a plurality of wells;

(b) a liquid dispenser placed to dispense a liquid sample to said plurality of wells;

(c) a liquid removal device placed to remove said liquid sample from said plurality of wells;

(d) a lighting device for illuminating said plurality of wells;

(e) a camera device configured to obtain a fresh image of said plurality of wells and save said fresh image to an image storage location; and

(f) a computer system configured to:

(i) access said saved fresh image;

(ii) determine a specific value corresponding to each one of the chemical reactions within each well at the time the image was obtained; and

(iii) communicate a representation of said specific values to a graphical user interface.

10. The system of claim 9, wherein said computer system is further configured to write said specific values to a data storage location.

11. The system of claim 9, wherein said representation comprises a warning message if said specific values are within a pre-defined range of failure.

12. The system of claim 9, wherein said liquid removal device comprises a centrifuge rotor for orbiting said plurality of wells about an axis of rotation.

13. The system of claim 9, wherein said liquid removal device comprises a liquid aspirating tube.

14. The system of claim 9, wherein the chemical reaction is oligonucleotide synthesis.

15. The system of claim 9, wherein said plurality of wells comprises a multi-well plate.

16. The system of claim 9, wherein said lighting device comprises a light emitting diode (LED) array.

17. The system of claim 14, wherein said LED array includes a first array and a second array positioned on either side of a multi-well plate-viewing window.

18. The system of claim 14, wherein said LED array includes a single array positioned pivotally mounted on one side of a multi-well plate-viewing window.

19. The system of claim 9, wherein said camera device comprises a charge couple device (CCD) capable of imaging the plurality of wells simultaneously.

20. A method for synthesizing a plurality of different polymers comprising:

(a) providing a plurality of wells containing support-bound monomeric or oligomeric precursors of said polymers;

(b) dispensing a liquid comprising second monomeric precursors of said polymers to said plurality of wells under conditions for forming an intermediate in which the support-bound monomeric or oligomeric precursors are bound to the second monomeric precursors;

(c) obtaining a fresh image of said plurality of wells and saving said fresh image to an image storage location;

(d) executing commands in a computer system to access said saved fresh image, geometrically register said saved fresh image in order to determine a specific value corresponding to each one of the chemical reactions within each well at the time the image was obtained, and save said specific values to an analysis results storage location; and

(e) if said specific values are within a pre-defined passing range then repeating steps (a) through (d) and if said specific values are within a pre-defined failing range then at least temporarily preventing repetition of steps (a) through (d) for at least one of the wells in said plurality of wells.

21. The method of claim 19, wherein step (e) further comprises communicating a representation of said specific values to a graphical user interface.

22. The method of claim 20, further comprising:

(f) if said specific values are within a pre-defined failing range and repetition of steps (a) through (d) is temporarily prevented for at least one of the wells in said plurality of wells then receiving a command from said graphical user interface to repeat steps (a) through (d).

23. The method of claim 19, wherein step (c) further comprises removing said liquid from said plurality of wells after obtaining said fresh image.

24. The method of claim 19, wherein removing said liquid comprises centrifugation or aspiration.

25. The method of claim 19, wherein said polymer comprises a polynucleotide and said monomeric precursor comprises a nucleoside.

26. The method of claim 19, wherein said plurality of wells comprises a multi-well plate.

27. The method of claim 19, wherein step (c) further comprises illuminating said plurality of wells with a light emitting diode (LED) array.

28. The method of claim 19, wherein said fresh image is obtained with a charge couple device (CCD) capable of imaging the plurality of wells simultaneously.